Amendments to the Claims

This listing of claims will replace all prior versions, and listings, of the claims in the application:

Listing of Claims

1. (currently amended) A method comprising:

receiving a~~ny~~ XML (extensible markup language) instance ~~schema having~~

~~elements~~;

receiving ~~an instance related to said~~ schema for said XML instance;

receiving a display specification having pattern matching rules for XML schema

elements; ~~and~~

generating a ~~display~~ user interface based on said XML schema elements and said

display specification ~~rules~~; and

populating said user interface with contents of said XML instance.

2. (currently amended) The method according to claim 1, wherein the display specification

further comprises presenters, wherein the presenters determine how the XML instance

appears on the ~~display~~ user interface.

3. (original) The method of claim 2 further comprising actions, wherein the actions modify

the presenters.

4. (original) The method of claim 3 wherein the actions further comprises functions based

on the schema selected from the group consisting of type checking and structural validation.

5. (original) The method according to claim 1, wherein the display specification further comprises presenters selected from the group consisting of tree, tabbed, list, and form.

6. (original) The method according to claim 5, wherein the presenters may have embedded within them presenters.

7. (original) The method according to claim 1, wherein the display specification further comprises display attributes selected from the group consisting of, font name, font style, font size, icons, access mode, folder, hiding, editor, lines, graphics, sound, and color.

8. (original) The method of claim 1 wherein the schema has a structure selected from the group consisting of a tree and directed graph .

9. (currently amended) The method of claim 1 wherein the schema and XML instance are well formed.

10. (currently amended) The method of claim 1 wherein the schema and XML instance are compliant with the extensible markup language (XML).

11. (original) The method of claim 1 wherein the display specification is compliant with the

extensible markup language (XML).

12. (original) The method of 11 wherein the display specification supports node selection from the group consisting of xmlns:Tagname, any:Tagname, any:any, and xpath language.

13. (original) The method of claim 11 wherein the display specification supports instance display attributes selected from the group consisting of hide, hide children, and override.

14. (original) A processing system comprising a processor, which when executing a set of instructions performs the method of claim 1.

15. (original) A machine-readable medium having stored thereon instructions, which when executed performs the method of claim 1.

16. (currently amended) The method of claim 1 further comprising receiving information from the generated ~~display~~user interface.

17. (original) The method of claim 16 wherein the information is from a user input.

18. (original) The method of claim 1 wherein the display specification further comprises presenters, wherein presenters may receive information from a user input.

19. (original) The method of claim 18 further comprising actions, wherein the actions are

based on information received by the presenters.

20. (currently amended) A method comprising:

receiving a display specification having rules for displaying schema elements;

receiving an XML schema; ~~and~~

dynamically generating a user interface based upon said XML schema and said

display specification~~.~~; and

populating said user interface based upon any received instance.

21. (original) The method of claim 20 wherein the display specification is well formed.

22. (original) The method of claim 20 wherein the display specification is compliant with

the extensible markup language (XML).

23. (original) The method of claim 20 wherein dynamically generating the user interface is

further based upon an XML data instance.

24. (original) The method according to claim 20, wherein the display specification further

comprises presenters, wherein the presenters determine how an XML data instance

appears on the user interface.

25. (original) The method of claim 24, wherein the display specification further comprises

actions, wherein the actions modify the presenters.

26. (original) The method according to claim 20, wherein the display specification further comprises presenters selected from the group consisting of tree, tabbed, list, and form.

27. (original) The method according to claim 26, wherein the presenters may have embedded within them presenters.

28. (original) The method according to claim 20, wherein the display specification further comprises display attributes selected from the group consisting of font name, font style, font size, icons, access mode, folder, hiding, editor, lines, graphics, sound, and color.

29. (original) The method according to claim 20, wherein the display specification further comprises an editor type selected from the group consisting of forms, check boxes, radio buttons, check lists, combobox, drop down list, tables, text, label, text window, and graphics.

30. (original) The method of claim 29 wherein the display specification supports restriction of any schema element and/or attribute.

31. (original) A processing system comprising a processor, which when executing a set of instructions performs the method of claim 20.

32. (original) A machine-readable medium having stored thereon instructions, which when

executed performs the method of claim 20.

33. (original) The method of claim 20 further comprising receiving information from the dynamically generated user interface.

34. (original) The method of claim 20 wherein the information is from a user input.

35. (original) The method of claim 20 wherein the display specification further comprises presenters, wherein presenters may receive information from a user input.

36. (original) The method of claim 35 further comprising actions, wherein the actions are based on information received by the presenters.

37. (original) The method of claim 36 wherein the actions may communicate to a destination selected from the group consisting of another program, a database, a user interface, a data instance, a processor, an XML instance, a schema, the XML schema, and the display specification.

38. (currently amended) An apparatus for dynamically generating a user interface comprising:

        means for receiving a schema having elements;

        means for receiving any instance related to said schema;

        means for receiving a display specification having rules for schema elements; and

means for generating a display based on said schema elements and said display

specification rules~; and

means for populating said display with contents of said instance.

39. (original) The apparatus of according to claim 38, wherein the display specification is well formed.

40. (original) The apparatus of claim 38, wherein means for generating a display further comprises means for a user to view information related to the instance.

41. (original) The apparatus of claim 40 further comprising means for the user to modify information related to the instance.

42. (original) The apparatus of claim 38 wherein the schema and instance are compliant with the extensible markup language (XML).

43. (original) A machine-readable medium having stored thereon information representing the apparatus of claim 38.

44. (original) The apparatus of claim 38 further comprising receiving information from the display.

45. (original) The apparatus of claim 44 wherein the information is from a user input.

46. (original) The apparatus of claim 38 wherein the display specification further comprises presenters, wherein presenters may receive information from a user input.

47. (original) The apparatus of claim 46 further comprising actions, wherein the actions are based on information received by the presenters.

48. (original) The apparatus of claim 47 wherein the actions may communicate to a destination selected from the group consisting of another program, a database, a user interface, a data instance, a processor, an XML instance, a schema, the XML schema, and the display specification.

49. (currently amended) A system comprising a processor, which when executing a set of instructions, performs the following:

    retrieves a schema having elements;

    retrieves any data related to said schema;

    retrieves a display specification having rules for schema elements; and

    generates a user interface based on said schema elements, said display specification rules, and said data; and

    populates said user interface with contents of said data.

50. (previously presented) The system of claim 49 wherein the user interface is generated dynamically based substantially upon the schema.

51. (original) The system of claim 49 wherein the user interface further comprises:

receiving a user input; and

modifying the data.

52. (original) The system of claim 49 further comprising transferring a payment and/or a credit.

53. (original) The system of claim 49 further comprising receiving information from the user interface.

54. (original) The system of claim 53 wherein the information is from a user input.

55. (original) The system of claim 49 wherein the display specification further comprises presenters, wherein presenters may receive information from a user input.

56. (original) The system of claim 55 further comprising actions, wherein the actions are based on information received by the presenters.

57. (original) The system of claim 56 wherein the actions may communicate to a destination selected from the group consisting of another program, a database, another user interface, a data instance, a processor, an XML instance, the schema, the data, the user interface, and the display specification.

58. (currently amended) An apparatus for dynamically generating a user interface

comprising:

    means for receiving an XML schema having elements;

    means for receiving any XML instance related to said XML schema;

    means for receiving an XML compliant display specification having actions and

presenters and rules for schema elements;

    means for generating a display based upon the display specification and said XML

schema elements;

    means for populating said display with contents of said XML instance;

    means for receiving a user input from the user interface; and

    means for communicating to a program or processor through actions and presenters

based upon the user input.